

REMARKS

Upon entry of this amendment, claims 1, 4-6, 9-18 and 20-24 will be pending.

Applicants amend claims 1, 6, 9, 11-13 and 22-23. Claim 1 is amended to incorporate subject matter of claim 8, and to delete the term "coating." Claims 6 and 9 are amended to be directed toward a product; claims 11-13 and 22-23 are amended to refer to a method.

Claim 8 is cancelled. Support for the amendment to claim 1 can be found in the claims as originally filed. No new matter is added. Entry is respectfully requested.

Rejections under 35 U.S.C. § 103:

A. On page 3 of the Office Action, claims 1, 5-6, 8-17 and 20-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson Matthey Co. Ltd. et al. (G.B. Patent 566,718 hereinafter, "GB '718") in view of Morrison, Jr. (U.S. Patent 5,242,623, hereinafter, "US '623"). The Office Action takes the position that GB '718 discloses each feature of claims 1, 5-6, 10, 16-17 and 24, except that GB '718 does not suggest the average particle diameter of the finely divided silver compound as being about 0.01-10 microns. In addition, the Office Action concedes that GB '718 uses cellulose nitrate instead of the claimed hydroxypropyl cellulose as a dispersant.

The Office Action cites US '623 as disclosing a relevant material comprising metal oxides or noble metal having a preferred particle size in the range of 0.1-10 microns. The particles are further noted by the Office Action as being mixed with an organic medium comprising a resin selected from among ethyl cellulose, *cellulose nitrate*, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, carboxymethyl cellulose, *hydroxypropyl cellulose*, and mixtures and the derivatives thereof, dissolved in a solvent such as alpha- or beta-terpineol and alcohols.

According to the Office Action, it would thus have been obvious to modify the screen printable thick film paste of GB '718 by incorporating a finely divided silver oxide compound having a particle size in the range of 0.1-10 microns as suggested by US '623 into the paste and further substituting the cellulose nitrate of GB '718 with the hydroxypropyl cellulose of US '623. The Office Action further takes the position that such a substitution is allegedly explicitly suggest by the prior art.

With specific reference to claims 14 and 15, the Office Action concedes that GB '718 does not explicitly suggest using a reducing agent in an amount of about 0.5-10 moles with respect to about 1 mole of the particulate silver compound. However, the Office Action assumes that it would have been obvious to optimize the proportions of the reducing agent and particulate silver compound through routine experimentation for best results.

B. Claims 1, 4-6, 8-18 and 20-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kodas et al. (U.S. Patent 6,951,666, hereinafter "Kodas") in view of Morrison, Jr. (U.S. Patent 5,242,623, hereinafter "US '623"). The Office Action takes the position that each Kodas et al. discloses each feature of claims 1, 4-6, 8-18 and 20-24, except that Kodas suggests using ethyl cellulose, carboxyl methylcellulose and nitrocellulose instead of the claimed hydroxypropyl cellulose as a dispersant. The Office Action cites US '623 as disclosing this feature, as discussed above.

With specific reference to claim 20, the Office Action asserts that the lower limit recited includes 0 (zero) parts of dispersant. Hence, the Office Action takes the position that the references need not teach the presence of dispersants.

With specific reference to claim 21, the Office Action alleges that US '623 and Kodas each disclose the claimed viscosity. US '623 is said to disclose the claimed viscosity at

column 4, lines 30-40; and Kudas' Abstract is cited as disclosing a viscosity of at least about 1000 centipoise, which is said to be equivalent to at least about 10 poise.

Applicants respectfully traverse the rejections and amend claims 1, 6, 9, 11-13 and 22-23.

Claim 1, from which all remaining claims depend, is amended to include features of cancelled claim 8, i.e., to recite

“the volume resistivity of an electrically conductive coating comprising the electrically conductive paste is about 3.0×10^{-6} to about $8.0 \times 10^{-6} \Omega \cdot \text{cm}$, which satisfies the following formula (1) when W represents the volume resistivity ($\Omega \cdot \text{cm}$) of the electrically conductive coating and X represents its specific gravity: $W \leq -1.72 \times 10^{-6} \times X + 2.3 \times 10^{-5} (1)$ ”.

This feature is not inherently or expressly disclosed in, and would not have been obvious over, any combination of GB '718, US '623, or Kudas. Particular advantages of this claimed relationship are illustrated in the Examples and related Figures (see, *inter alia*, Example 3 on page 17, and Fig. 3). The advantages of the composition include its high electrical conductivity and capability of being formed under low temperatures, thus allowing for a wider range of base materials and applications. Also, circuit line width can be narrowed while avoiding the need to increase line thickness (see page 22).

Also, the method claims include all the features of allowable claim 1, and thus should also be allowed.

In addition, the claims directed to the coating itself should also be allowed for the reasons discussed above.

The combined references do not teach or suggest, nor is there any apparent reason to combine and then modify the references to achieve a composition meeting the claimed

relationship. Hence, the features claimed would not have been obvious over any combination of GB '718, US '623, or Kodas.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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CUSTOMER NUMBER

Date: November 25, 2008



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